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ABSTRACT

The perception that the United States is falling behind in the skills race has prompted experts to look abroad for policy ideas. Of particular interest has been the German "dual system," which alternates 2 to 3 years of highly structured work-based training with classroom teaching for young people, beginning at age 16. Buoyed by the success of the German example, enthusiasm for a U.S. youth apprenticeship program has soared, despite considerable disagreement as to what, precisely, "apprenticeship" would mean in the American context. President Clinton has announced a goal of creating an apprenticeship system that covers all 50 states, but budget constraints mean allocating just over \$5 million per state--not nearly enough for a national system. To produce a large return on this relatively small federal investment, the administration must decide which objectives to pursue and then set out a clear strategy for achieving them. Three criteria can guide policymakers. First, the system must have enough status to attract and motivate young people. Second, the system must provide incentives and institutional support for employers to offer high quality youth training. Third, the system must be feasible. One youth training scheme would link youth apprenticeships with the new administration's broader strategy for helping U.S. industry compete in a high tech global economy. A key part of this technology strategy is to use federal matching funds to build a national network of manufacturing extension centers and create a new set of regional technology alliances. The capacity of firms to use the services thus provided, however, would depend on the skills of their workers. Linking youth apprenticeships and lifelong worker training programs with these other services would enhance both the use of the services and the relevance and quality of training. Setting high national standards would ensure quality of training and make apprenticeships more attractive to employers. (20 notes) (YLB)

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Making Apprenticeships Work

By David Finegold

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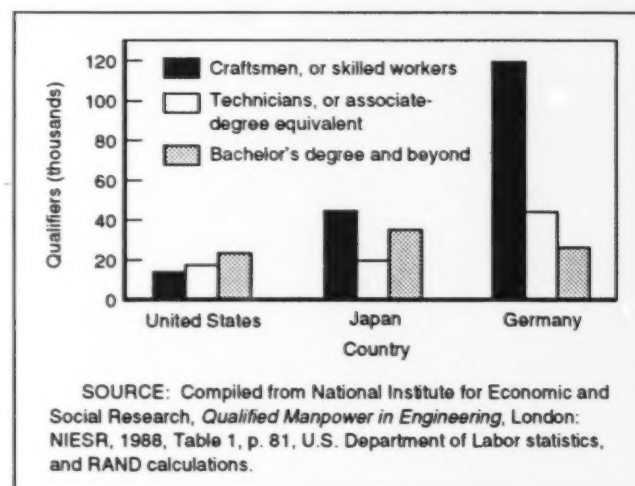
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The word *apprenticeship* once evoked images from Dickens: young boys stitching shoes by hand or toiling in a squalid factory. But today, in America's high-tech and services-dominated economy, youth apprenticeship is one of the hottest topics in education. In the last Congress, both parties introduced legislation to expand apprenticeships, which are currently undertaken by only 0.1 percent of young people.¹ Under Bill Clinton, Arkansas became one of the first five states to introduce youth apprenticeships. And in his State of the Union address, President Clinton proposed expanding youth apprenticeships into a national program, allocating \$1.2 billion over the next four years.²

This growing attention results from changes in the economy and the educational environment. Increasing global competition and rapid shifts in product and process technology have forced industrialized nations to recognize that their capacity to create and sustain high-wage jobs depends in part on the skills of their current and future workforce. Although the United States produces as many graduates, proportionately, as its main competitors, it has failed to provide most of its population with the requisite craft and technical skills (see the figure).

The perception that the United States is falling behind in the skills race has prompted American experts to look abroad for policy ideas. Of particular interest has been the German "dual system," which alternates two to three years of highly structured work-based training with classroom teaching for young people, beginning at the age of 16.³ The system creates a large pool of skilled

workers who are widely acknowledged as central to the success of German manufacturing.



Number of persons qualifying in engineering and technology, adjusted for population size, 1985

Setting Policy Priorities

Buoyed by the German example, enthusiasm for a U.S. youth apprenticeship program has soared despite a failure to define precisely what *apprenticeships* would mean in the American context. Indeed, the term is currently used to cover a variety of objectives and program types, many of which are in conflict:

RAND Issue Papers explore topics of a critical interest to the policymaking community, with the intent of stimulating discussion in a policy area. They may identify trends or present tentative observations or informed judgments based on an ongoing program of research.

- President Clinton has proposed apprenticeships as a new training option for non-college-bound youth, intended to smooth the transition from school to work for a group now perceived to be drifting unproductively from job to job.⁴
- Providers of vocational education and job training have lobbied for using apprenticeships to increase the resources and raise the status of existing programs.⁵
- Education experts advocate using apprenticeships to transform the way young people are taught in schools. This goal fits well with the latest research, which suggests that the vast majority of young people learn best in small, cooperative groups with continuous, competence-based assessment and real-world subject matter.⁶
- The National Center on Education and the Economy has suggested restructuring the end of high school and the first year of college, making apprenticeships the educational pathway for most students.⁷
- Employers have argued for enhancing U.S. competitiveness by providing a large supply of new recruits with both a strong general-education foundation and more occupational and firm-specific skills.⁸

If the federal government follows historical, compromise modes of policymaking, the resulting apprenticeship package will include elements to satisfy most of these interests and will therefore be unlikely to solve America's skills problem. Instead, it will add another program to an area already overflowing with different initiatives.⁹ The danger of diffusing scarce resources too widely to have a real impact was evident in the President's initial budget proposals: He has the laudable goal of creating an apprenticeship system that covers all 50 states, not a series of demonstration projects. But constraints imposed by the budget deficit mean that he has allocated an average of just over \$5 million per state (rising to \$10 million by 1997)—not nearly enough for a national system.

To produce a large return on this relatively small investment, the administration must decide which objectives to pursue, then set out a clear strategy for achieving them. Three criteria, derived from research on the German dual system and U.S. experience, can guide policymakers:

1. The system must have enough status to attract and motivate young people.
2. The system must provide incentives and institutional support for employers to offer high-quality youth training.
3. The system must be feasible, i.e., one that is suited to the U.S. context and can be implemented with the resources available.

The remainder of this paper uses these three criteria to critique existing apprenticeship ideas and proposes an alternative youth-training system that could work in the United States.

Motivating Young People: Closing the College-Versus-Non-College Divide

One distinctive feature of German apprenticeships is that they, rather than college, are the main route in the educational system, involving more than 60 percent of all young people. Placements range from prestigious banking firms—which now recruit, almost exclusively, 18-year-olds who have already completed the rigorous university entrance exam (*Abitur*)—to butchers and bakers, who take on 16-year-olds who have been less successful in school.¹⁰

The U.S. educational system, on the other hand, has always focused on young people who go on to college, now approximately half of all 18-year-olds. Many of the recent apprenticeship proposals, including the President's, are designed for those students *not* entering college, dubbed "The Forgotten Half" in an influential report by the William T. Grant Foundation.¹¹

Although it is undoubtedly crucial to improve education and training for the non-college bound, billing apprenticeships as the solution for the Forgotten Half risks repeating a well-documented pattern in U.S. vocational education and a problem that has plagued federal training policy: stigmatizing apprenticeships as something provided to those who have failed in mainstream education. The Employment Service and programs under the Job Training Partnership Act are similarly accorded low status by employers and individuals, in part because of the groups they target.¹²

The college-non-college division may be further reinforced if the administration pursues its proposals for national service and the reform of student funding for higher education alongside its apprenticeship program. Continuing in the current two-track system, young people performing similar tasks in a hospital or on a police force may be treated very differently—some doing *service* to earn a lucrative voucher for college, and others undergoing *training* for a minimum-wage allowance.

If the administration pursues a two-track strategy, it risks excluding another "forgotten" group that could benefit greatly from, and greatly strengthen, the apprenticeship program: the approximately 25 percent of young people who enter postsecondary education

directly after high school but never obtain a degree. Including this "forgotten third quarter" in any training package offers several advantages:

- Apprentices who are likely to have a better science, math, and reading foundation on which to build the technical skills needed in the modern workplace.
- A changed image of federally funded vocational education and training—from compensation for social disadvantage and educational failure to skills enhancement for the majority—helping to persuade young people, teachers, and employers to take part.
- Reduction of waste and misdirection of resources in postsecondary education. A major midwestern public university, for example, now spends up to 25 percent of its undergraduate-education budget on remedial education—a mission it was never intended to have. And many community colleges provide basic literacy and numeracy classes with a majority of their funds—funds that might be better spent on apprenticeship programs that could more effectively convey the same set of basic skills and still provide access to higher education.

Offering Incentives to Employers

A second clear lesson from the German system is that high-quality apprenticeships cost money, particularly for the companies involved. Although the quality of German apprenticeships varies widely, leading companies, such as Mercedes Benz, will spend up to \$100,000 on each trainee.¹³ Firms' ongoing support for apprenticeships is maintained because employers are given an integral role in this tightly regulated system: They oversee the governance of apprenticeships, ensuring that the training keeps pace with their changing requirements. And the costs are shared equitably: Individuals accept a small training allowance and generally live at home during apprenticeships, and the state pays for all off-the-job training.

In contrast, the United States has historically relied on the market, assuming that employers are the best judge of how much, if anything, to spend on training new recruits. The market system fails to take into account the "poaching" problem: Firms that may want to invest in new workers' skills do not do so because, in the United States' highly mobile labor markets, there is a major risk that trainees will be hired away by competitors. The result: market failure and an underinvestment in training.

One way to encourage firms to take on apprentices is to create a financial incentive: a tax write-off for certified youth training. But training costs can already

be deducted from revenues before taxes, and, without adequate institutional safeguards in place, further subsidies would be subject to abuse.

An alternative would be to introduce President Clinton's campaign proposal to require firms to spend 1.5 percent of payroll on training and earmark a small portion of that expenditure for recognized apprenticeships. (France now has a similar policy.) However, given the lack of reliable information on company-based training and the danger that a payroll levy will encourage firms to contract out even more work than they do already, this policy would be risky and difficult to monitor. The new administration appears to be backing away from the payroll tax, not the least of its fears being that employers will be overburdened with the introduction of universal health coverage.

Without such incentives or regulations, U.S. employers may not participate in an apprenticeship program, or may treat apprentices as cheap labor. Ways for firms to make the investment in apprenticeships pay off are suggested in a National Alliance of Business (NAB) apprenticeship guidebook: "transform existing part-time slots into trainee positions" or "restructure work... to allow part-time work for trainees rather than hire additional full-time employees."¹⁴ The problem with such strategies is not only that they are unlikely to deliver high-quality, company-based training, but also that they directly conflict with one of the new administration's top priorities: creating new jobs. Fear of job substitution has been a principal reason why U.S. trade unions have historically opposed youth apprenticeships.

Establishing Feasibility: Copying Germany Is Not the Answer

Many apprenticeship advocates are holding up the German system as the model for the United States to copy in establishing a national network of youth apprenticeships. Advocates of the German model, however, often miss the extent to which German apprenticeships are part of a *system*, not simply another training program. It is not feasible to transplant this system—which evolved from the medieval craft guilds and thus is grounded in a long tradition of respect and reward for skilled manual careers—without the deep structural and cultural roots that support it. Among this system's components are

- An educational system that ensures that individuals entering apprenticeships have sound basic knowledge and skills from which to build more work-related competencies.

- A network of powerful chambers of commerce in which membership of all local companies who administer the apprentice exams is compulsory and which place informal sanctions on employers who do not carry their share of the training burden.
- Long-term financial relationships between banks and industry. Such relationships enable many firms to invest in the skills of the future workforce even during recessions, when many of their U.S. counterparts cut training and lay off new recruits.
- A highly regulated youth labor market, in which trainee allowances are set relatively low (averaging \$524 per month in 1991) and few alternative jobs exist to attract teenagers and push up wages.
- National standards that safeguard the quality of the training provided and ensure that apprentices in a given occupation are learning the same skills throughout the country. Individuals must complete their certification in order to work in many occupations, thus giving qualifications a high status and financial reward.
- An ample supply of trained trainers (*Meisters*). *Meisters* oversee the quality of on-the-job training and link it to the latest changes in the production process. They also provide a career path for trainees, who can aspire to becoming a *Meister* after acquiring the necessary years of work experience and returning to education part-time to obtain additional qualifications.
- An industrial relations system that includes the following:
 - Unions that cooperate with firms to promote the flexible work organization needed to make full use of the latest technologies.
 - Works Councils that oversee the quality of training and protect trainees' interests within companies.
- A partnership of government, business, and organized labor that can build, albeit slowly, the consensus needed to change occupational standards and training in response to new skill demands. The highly regulated and consensual nature of the German system means that it is slow to adapt to changes in technology and work organization; however, when changes do occur, they have the support of all the main actors in the system.¹⁵
- Perhaps most important, a large pool of employers who have developed product and service markets and organized the work process in a way that utilizes the skills that apprentices acquire.

Even if German apprenticeships and the surrounding institutions that make them work could be replicated in the United States, most Americans would surely reject certain elements of the dual system, such as its early specialization. The German system tracks young people at the age of 10 into separate academic, technical, and vocational schools. It then links school performance closely with the quality of subsequent apprenticeships—and hence career opportunities—creating very strong incentives for students to work hard in school. However, it also leaves few second chances for those who cannot secure or complete an apprenticeship. Young people in Germany are beginning to recognize the disadvantages of early specialization in a rapidly changing economic environment; a majority of 16-year-olds now choose to remain in a broader full-time education program for at least one year before entering apprenticeships.

A Workable Reform Strategy for the United States

Although it is neither desirable nor feasible for the United States to create a national, German-style apprenticeship system, the new administration should consider a more targeted approach that attempts to put in place in key economic regions of the United States some of the general lessons from Germany:

- Involve all the main actors.
- Set clear, high standards.
- Share costs equitably.

Correctly designed, apprenticeships could still meet the three criteria outlined earlier: attracting all individuals, creating incentives for employers, and accommodating the needs and constraints of the U.S. policymaking system.

One possible route would link youth apprenticeships with the new administration's broader strategy for helping U.S. industry compete in a high-tech global economy. A key part of this technology strategy is to use federal matching funds to build a national network of Manufacturing Extension Centers and to create a new set of Regional Technology Alliances.¹⁶ These cooperative ventures will provide employers, particularly small companies, with an array of services that are often beyond the means of individual firms, e.g., export marketing, technology diffusion, pooled research, business consulting. The government covers part of the costs of these services, because of the public good associated with such investments, while firms pay a fee in order to be part of the consortia. Such arrangements

have already proven successful in Japan, Germany, and other industrialized countries.¹⁷

As these new institutions develop, their scope could be broadened effectively from what is normally thought of as advanced manufacturing, e.g., industrial machinery and semiconductors, to encompass sectors such as textiles, which is now heavily automated, and services such as health care and banking, which rely on an array of advanced information technologies.

The capacity of firms to use such arrangements, however, depends on the skills of their workforces. Linking youth apprenticeships and lifelong worker training programs with these other services would enhance both the utilization of the services and the relevance and quality of training.¹⁸ Training could be delivered through a partnership between local education and training institutions, area employers, and the Extension Centers and Regional Alliances.¹⁹ An individual would spend a minimum of three years, starting in the last year of high school, alternating between occupation-specific training delivered on the employer's premises and more general instruction at school or college. If a small employer is unable to provide the broad range of skills an individual requires, the local cooperative arrangements would enable apprentices to acquire additional training in the Extension Center or at other firms.

To ensure the quality of training, the government should increase support for developing national standards in key occupations, to give broader currency to the locally developed courses and qualifications and to provide a way to monitor training outcomes.

To motivate individuals to participate in such a system, it is crucial that apprenticeships be open—and attractive—to all young people, not just the non-college bound. All applicants should be required to pass a test showing a mastery of reading, math, and problem-solving. Setting high entry standards need not exclude certain groups, as the experience of Detroit's Machinist Training Institute (MTI) illustrates.

Since 1981, MTI has trained more than 800 young adults from inner-city schools to be skilled machinists; it provides those who could not meet the initial standard with an intensive, six-week regimen of computer-aided study.²⁰ Like MTI and other successful programs, any apprenticeship package that wishes to motivate young people must offer not only a path to rewarding jobs but also the opportunity to accumulate credits toward a bachelor's degree and beyond.

Guaranteeing that trainees arrive with a good educational foundation will make apprenticeships more attractive to employers. The government could further encourage employer involvement by addressing some of

the market-failure problems associated with skills investment:

- Providing the bulk of general skills training off-site, using public funds.
- Liberalizing regulations governing employment contracts, so that companies and individuals could sign agreements that would outline their mutual responsibilities:
 - The firm to provide a full course of training leading to a recognized qualification.
 - The individual to remain with the company for a specified time after the training is completed or compensate the firm for a portion of the training costs. In practice, this "poaching penalty" might be paid by the firm that recruited away the newly qualified trainee.
- Most important, linking training with other technology extension services to encourage businesses to view skills development as vital to their overall strategy.

The apprenticeship proposal outlined here begins small and attempts to build on success. It recognizes that training is not a *good* in itself. Apprenticeships will be valued by young people if they are linked with a job that enables them to use and continue to develop their skills, and by employers if apprenticeships help improve innovation and productivity in their firms.

Notes

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4. This is the option outlined by Bill Clinton and Al Gore in *Putting People First*, New York: New York Times Books, 1992, and detailed in Marshall, Will, and Martin Schram, eds., *Mandate for Change*, Washington, D.C.: The Progressive Policy Institute, 1992.
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10. Casey, B., *Recent Developments in West Germany's Apprenticeship Training System*, London: Policy Studies Institute, 1990.
11. William T. Grant Foundation, 1992.
12. Bloom, Howard S., et al., *The National JTPA Study: Title II-A Impacts on Earnings and Employment at 18 Months*, Bethesda, Md.: Abt Associates, May 1992, p. 25.
13. In the *Handwerk* (craft) sector, small employers may actually break even or make a profit on apprenticeships, by increasing the ratio of productive work to training and paying a smaller training allowance. See also Walters, L., "German Training System Gets Some Attention in U.S.," *Los Angeles Times*, January 1, 1993, p. E4.
14. NAB, 1992, p. 19.
15. Casey, 1990.
16. Clinton, W., and A. Gore, *Technology for America's Economic Growth*, Washington, D.C.: The White House Press Office, February 22, 1993, p. 32.
17. Evidence for the success of these cooperative arrangements in other countries can be found in Sabel, C., "Flexible Specialisation and the Re-emergence of Regional Economies," in P. Hirst and J. Zeitlin, eds., *Reversing Industrial Decline?* Oxford: Berg, 1989. Such arrangements are just beginning to appear in the United States; see Sommers, P., *Flexible Networks in the United States: An Overview of an Emerging Movement*, paper presented at American Public Policy and Management Association Annual Conference, Denver, October 29, 1992.
18. Research on state training programs suggests that they work best when linked with the other elements needed for business restructuring. See The National Center on the Educational Quality of the Workforce, *EQW Issues*, No. 4, Philadelphia, Pa.: Univ. of Pennsylvania, 1992.
19. For examples of successful cooperative education programs and other local partnerships, see Grubb, W. N., et al., *Between and Between: Education, Skills, and Employment in Sub-Baccalaureate Labor Markets*, Berkeley, Calif.: National Center for Research in Vocational Education, November 1992.
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